Iowa Communications Network
OSP Project #77160603 Link 1113 (84F)
Polk County, NW 66th Ave. Bridge Replacement, Johnston Ia

Overview of the Project:

Relocate approximately 7000' of Iowa Communications Network (ICN) fiber-optic cable along NW 66TH Avenue in Johnston due to the replacement of a bridge and miscellaneous street improvements. The existing cable runs on the North side of NW 66th avenue and is attached to the north side of the bridge. The bridge project will be constructed with a North phase and South phase, with the south phase to be completed first. At the time the new south half of the bridge is completed, the existing north half of the bridge will be demolished.

ICN will splice into the existing cable in the north ROW of 66th Avenue at NW 48TH Court. New fiber and duct will be bored in the north ROW of NW 66th Ave to a point approximately 900' west of the new bridge. The fiber will be bored under NW 66TH Ave. to the south ROW and continue eastbound to connect to a conduit stub on the new bridge wing wall. Duct and fiber will exit the bridge on the east bridge wing wall and route back to the south ROW of NW 66th Ave. Duct and fiber shall be extended eastbound in the south ROW of NW 66TH Ave. to NW Toni Drive. Duct and fiber to be bored under NW 66th Ave. at Toni Drive to connect back into the existing alignment. See attached plans.

Preparatory Tasks & Responsibilities:

1. Contact Iowa One Call (1-800-292-8989) to request location of any underground utilities forty-eight (48) hours before excavation.
2. Contact any private utilities located within the proposed work area.
3. Obtain "ROW Use Grant Permit" (No Charge) from the County. Obtain Permit Bond and Provide Certificate of Insurance, for questions call Polk County Public Works 515-286-3705
4. Notify the following contacts a minimum of forty-eight (48) hours prior to commencement of construction.

   Polk County Engineering
   Jim Dress
   515-240-8966
   Jim.dress@polkcountyiowa.gov
   Trent Wolken
   515-286-3705
   Trent.wolken@polkcountyiowa.gov

5. Exceptions/Additions to Standard Installation Requirements:
   5.1. Duct splices may be a minimum of 36 inches deep provided all other depth requirements are met and any excavation is mechanically tamped after back-filling.
6. *Insure that all open pits or other excavation are properly fenced off.*
7. *Obey all IDOT right-of-way rules and safety procedures.*
8. *Pick up debris, left-over material, trash, etc.*

Duct Installation

1. Provide 2-inch HDPE, SDR 13.5 duct from Station 101+10 (46' LT) to Station 135+60 (West Bridge Wing Wall) and Station 144+10 (East Bridge Wing Wall) to Station 157+50 (66' LT)
2. Bore alignment to be generally 4' off South right-of-way, sweeping into new hand-hole placements (see construction drawing) Note miscellaneous changes in ROW distances and connections to the SW and SE wing walls of the new bridge. Exercise care in the proximity of the 30" dia. water main. Follow changes in ROW distances and depths as shown on the plans. Transition couplings will be needed to connect the 2" HDPE duct to the 1 ½" galvanized pipe at the bridge wing walls. Couplings can be ordered from Graybar Electric. Dura-Line Transition Coupling, part # 06-240-2375
3. Depth of HDPE must be a minimum of 3' in all areas. HDPE bored under paved drives and streets to be a minimum of 4' below top of slab. Make special note of 10' minimum depth areas to avoid DM water works 30" dia. main.
4. Multiple bores allowed. Any duct splice must be buried a minimum of 36 inches deep, backfilled, and tamped. Segments to be joined with duct splice.
5. It shall be the sole responsibility of the contractor to ensure that the duct installation is in the public Right-of-Way. The ROW will be staked by the design firm in charge of the bridge & paving project. The ICN fiber contractor will notify ICN a minimum of 7 days prior to commencing work so ICN can coordinate placement of stakes. The ICN fiber contractor will be responsible for preserving/protecting said stakes. Stakes needing replaced due to contractor carelessness shall be at the expense of the contractor.
6. Provide and place pull rope (mule tape) in duct for future use.
7. Completed span of duct must be free of debris and allow for future pulling of cable from handhole to handhole.

Handhole Placement: Install an ICN-furnished 24" X 36" X 30" handhole with 20T lid at the following locations per ICN Standard Practice (see Typical drawing):

1. Station 101+10 (46' LT)
2. Station 109+25 (46' LT)
3. Station 118+00 (46' LT)
4. Station 126+25 (61' LT)
5. Station 126+25 (66' RT)
6. Station 135+00 (86' RT)
7. Station 144+50 (71' RT)
8. Station 150+50 (61' RT)
9. Station 157+50 (61' RT)
10. Station 157+50 (66' LT)

Exact placement may be field adjusted if needed contingent on ICN pre-approval.

Fiber Installation

1. Install ICN-furnished, 96-strand armored single mode fiber from Station 101+10 (46' LT) to Station 157+50 (66' LT) via new HDPE duct. Route will include a pull through 1 ½" diameter rigid conduit in the bridge deck.
2. **Slack Loops** shall be installed at the following locations:
   2.1. Coil a minimum of 50 feet in hand holes 2-9 listed above. Leave a 50' splice tail at hand holes: Sta. 101+10 (46' LT) and Sta. 157+50 (66' LT)

NOTE: At the conclusion of the project, ensure that a pull rope is left in the HDPE pathway into and between hand-holes

Locate Facilities:

1. The metallic shield of the armored cable shall be used as the locate wire. Bond the armored cables through the splice enclosures with the ICN supplied 3M Skotchlok shield bonding kits.

Relocation Preparation:

1. Expose splice tails
   1.1. At Sta. 101+00 (23' LT) to Sta. 101+75 (23' LT), excavate 75 feet of existing, live ICN cable for splice tail.
   1.2. At Sta. 156+50 (27' LT) to Sta. 157+50 (27' LT), excavate 100 feet of existing, live ICN cable for splice tail.

Splicer Responsibilities:

1. Field splicing after hours during Maintenance Window established by ICN (typically 00:01 – 06:00 hours)
   1.1. At Station 101+10 (46' LT) splice the existing (west) 96-strand cable to the first 84 fibers of the new 96-strand cable. Splice the remaining 12 fibers of the existing 96 fiber cable to the 12 fiber Windstream cable.(Windstream to pull in new cable) Coil the remaining 12 fibers of the new 96 fiber cable and place in tray. (do not cut off)
   1.2. At Station 157+50 (66' LT) splice the existing (east) 84-strand cable to the first 84 fibers of the new 96-strand cable. Coil the remaining 12 fibers of the new 96 fiber cable and place in tray. (do not cut off)
   1.3. Loss for each splice shall be .05 dB or less.
   1.4. Document sequential numbers on each cable at the entrance into the handhole *and* at the splice enclosure. Each handhole location should have a total of four sequential numbers (2 for the existing cable and 2 for the new cable)
2. Bond all armored cables per the "**Locate Facility Requirements" (see above).** Follow ICN standards and manufacturers' standard to assure all bonds are connected to ground bar or locate pedestal for locating.
3. **Provide Pictures of the completed splicing in cases or panels showing preparation, splice trays and final installation.**

ICN Responsibilities:

1. Project Management
2. ICN-furnished materials; see below.

ICN Point of Contact for this Project:

Mike Broderick
515-725-4610 office
515-330-7139 cell

Other Points of Contacts:
ICN Warehouse: Paul Damge 515-725-4749 (office) or 515-491-1429 (cell)

Work Start Date: Work may begin upon completion of contract and notification from ICN that the south bridge construction is complete. At this time the anticipated work start date would be mid- July. Only written modifications to this Scope of Work are binding - Verbal changes to this scope of work by any person or persons are not binding, unless confirmed in writing.

Completion Date: NLT August, 2016. Close coordination will be needed with the on-going bridge project and ICN will have to have the cutover completed immediately after the South half of the new bridge is complete.

Quotes Due Date:
Quotes must be received by Sheri Stephens, ICN Contracting, **NLT 2PM on Thursday, June 30th, 2016**

Materials: Contractor shall pick up ICN-furnished materials at the ICN warehouse in Des Moines.
Contact the ICN warehouse 48 hours in advance to pick up materials; contact Paul Damge (515-725-4749) to ensure availability.

Contractor shall supply all other materials required for proper installation, including but not limited to:
HDPE duct, duct splice, rock, wire mesh, tape, ring terminals, posts, zip ties, etc.

Item	Part #	Quantity	Unit	Note:
96 strand Armored SM fiber		7000	LFT	ICN-furnished
24" X 36" X 30" TD handholes w/ 20T lid	PC243630SN20	10	EA	ICN-furnished
Tyco 450D splice enclosure	FOSC450DNT0D6V	2	EA	ICN-furnished
Tyco 450 D splice tray (36 count)	426579-000	6	EA	ICN-furnished
Scotchlok shield bond connector	95077180	2	EA	ICN-furnished
2-inch HDPE, SDR 13.5 Duct		5500+/-	LFT	Contractor-furnished
E-LOC Coupling or approved fitting		2	Ea	Contractor-furnished
Rock and wire mesh for handhole placement				Contractor-furnished
Misc. tape, ties, wire, terminals, etc.				Contractor-furnished

STANDARD INSTALLATION REQUIREMENTS:

General Requirements:
1. The contractor **shall** pothole all existing utilities.
2. Provide the owners of any natural gas utility 48 hours advance notice that work is scheduled in the vicinity of their lines/mains so that they can provide standby and protect services.
3. Maintain proof of notification to and receipt of notification by the gas utility.
4. Permits and coordination
   - 4.1. Secure all necessary state and local (city, county, etc.) permits, public or private easements, facility permits, usage permits, and any other permit required by an Authority Having Jurisdiction (AHJ).
   - 4.2. ICN will obtain and provide copies of IDOT permits.
   - 4.3. If permits are required to be in the name of the owner rather than the contractor, the contractor shall prepare the permit for the owner's signature.
   - 4.4. Coordinate installation with all owners and AHJ over the route, the fiber, Right-of-Way and buildings in which end points will be located.
   - 4.5. Failure to coordinate with the AHJ and to obtain all necessary permits is at the peril of the contractor.
   - 4.6. Right-of-Way Permit fees are an authorized extra above the quoted bid price. Excavation permits shall be by the contractor.
   - 4.7. Ensure all facilities are placed within the public Right-of-Way.
5. Ensure that personnel working in the ROW are equipped with and use proper safety equipment and attire.
6. Provide all labor and supervision for the project.
7. Provide and install materials needed to result in a fully functional system meeting ICN standards, whether or not the materials or methods are specifically mentioned in this document. See the list of ICN-furnished materials.
8. Install cable route markers furnished by ICN. Where possible, install markers adjacent to poles, buildings or in other protected areas.

9. A copy of this Scope of Work and the Engineering Plan for this project shall be on site and available any time work is being performed. Failure to have the required documents on site may result in ICN requiring the contractor to stop working until the required documents are on-site.
10. Excavations and Trenches: The ICN requires all open excavations or trenches to be monitored and attended to during construction per. The ICN requires all open excavations and trenches backfilled the same day. If the contractor is required to leave an excavation or trench open, then the contractor shall properly fence and/or cover the excavation for safety. Contractor shall follow all OSHA requirements for excavation and trench safety.
11. Restore all damage to private property, Right-of-Way, ICN property, and any other property damaged in the course of the work.
    11.1. Areas shall be restored to original or better condition.
    11.2. Dirt shall be mechanically compacted around handholes and pits.
    11.3. Lawns shall be sodded with like grass.
    11.4. Contractor is responsible for watering the sod until it has knitted to the ground beneath.
    11.5. All debris shall be removed from the construction areas including but not limited to: construction materials, trash, large objects or stones within backfilled areas, etc.

Duct Installation Requirements

1. HDPE duct shall be no less than 48 inches deep.
2. Duct shall be installed in the public Right-of-Way.
3. When crossing Iowa Highway in DOT Right-of-Way, duct shall be no less than 48 inches below grade under the roadway and shoulders. HDPE may be used under the roadway and shoulders if installed at a minimum depth of 48".
4. Should it be necessary to cross private property, the Contractor may apply to the ICN for an exception, and request permission to secure an easement. The easement is required to be in the name of ICN and the contractor shall have the easement prepared by a Land Surveyor licensed in the state of Iowa. Contractor shall be responsible for all fees unless previously authorized by the ICN.
5. At the conclusion of the project, provide and leave a pull rope in all ducts, conduits and pathways, including indoor, outdoor, new and existing.
6. Dirt shall be mechanically compacted at all duct splices, bore pits and around handholes.
7. Ground shall be restored to the condition found prior to construction and debris removed prior to sodding or seeding.
8. All conduits shall be plugged via duct seal or other method upon completion of cable installation.

Handhole Requirements

1. Install handholes so that the lid is level and flush with the surrounding natural grade. The lid SHALL NOT extend above the surrounding natural grade.
2. Provide ¼" opening hardware cloth type screen wire below the handhole.
3. Provide 12 inches of "pea gravel" or rock no larger than ¾" below the handhole. Rock shall be compacted. Gravel shall extend a minimum of 6 inches beyond the outside walls of the handhole.
4. Do not place gravel inside handhole above the hardware cloth.
5. Conduit shall extend a minimum of 6" above the hardware cloth/gravel.
6. Failure of the contractor to install handholes as specified will cause the contractor to return and re-install the handhole according to this specification before payment for the project is made.
7. Handhole installations shall follow ICN standard practice engineering plan.

Fiber Installation Requirements

1. Install fiber according to industry "Best Practices".
2. The contractor shall not violate the manufacturer's minimum installation bend radius when the cable is under tension, or the minimum installed bend radius.
3. To prevent exceeding the manufacturer's maximum pulling tension during installation of the fiber optic cable, the contractor shall use a "Break-away" pulling swivel when installing cable.
4. The "Break-Away" function shall activate at or below the maximum pulling tension specified by the cable manufacturer.
5. The contractor shall test all strands of the fiber, on the reel, prior to beginning fiber installation. Confirm that all strands meet manufacturer's loss specifications.
6. The contractor shall field verify all lengths and existing conditions prior to starting construction.

Building Entry Requirements

1. Weather-seal all penetrations.
2. Use mortar or similar cement to seal penetration of brick or cement block.
3. Firestop penetrations of any fire-rated floor, wall or ceiling.
4. Replace the Firestop material in any existing Firestopped penetration used by the contractor.
5. All outdoor conduits, of any length, shall be Galvanized Iron Pipe (GIP). EMT, PVC and plastic are prohibited.

6. Immediately upon installation, seal the ends of all ducts with duct seal or expansion foam to prevent siltation or filling with moisture. This applies to both new and existing ducts.
7. Exterior exposed conduit shall be Galvanized Iron Pipe. EMT and plastic prohibited.
8. At the conclusion of the project, ensure that a pull rope is left in ALL pathways, both inside and outside, new and existing.

Locate Facility Requirements

1. Tracer wire shall be continuous.
2. Splices in the tracer wire are not allowed. If tracer wire is accidentally severed, request permission from ICN to splice.
3. Wire splices only in handholes.
4. Use either an epoxy splice kit, Scotch 3M 3832 or a Molex PermaSeal Butt Spice. 10-12 Ga. Splice materials SHALL be designed for underground applications.
5. Leave the wire splice visible in the handhole.
6. Route a ground wire from the ground inside the building, through the entry to the TII 136 terminal.
7. Secure all riser conduits with 3 each two-hole conduit straps.
8. Wire the pedestal/terminal so that locates may be performed in any direction and from the far end.
9. Do not leave any exposed tracer wire or ground wire.
10. Permanently ground the tracer wire at the handhole on the furnished ground rod.
11. At the conclusion of the project leave the tracer wire shield shorted to ground in the locate terminal.
12. Use tracer wire that is rated for direct burial where required. THHN insulation is acceptable for placement within duct, handholes, or enclosures, or any location not in direct continuous contact with soil or water.
13. Label all wires in the locate terminal/pedestal/TriView. (I.e. “Ground”, “Facing DMACC”, “Facing North” etc.)
14. Failure to label the locate wires will cause the contractor to return and properly label the wires before payment for the project is made.
15. Bond tracer wire(s) **within** splice enclosures utilizing a 3M 4460-D\FO Shield Bonding Kit.
16. Route tracer wire(s) out of splice enclosure through a single port utilizing a FOSC closure sealing kit.
17. At splice locations with no locate pedestal, tracer wires shall be bonded together, within the splice enclosure.
18. At each end of any tracer wire, use appropriate-sized ring terminal (crimp) connectors.

DELIVERABLES/ACCEPTANCE:

1. Contractor shall provide construction redline as-builts with:
   1.1. Offsets to fixed objects to the cable/conduit running line, handholes and new facilities.
   1.2. Meter marks of cable installations at handhole entry/exit, splice locations, building entries, etc.
2. Contractor shall provide splicing redline of all splicing completed and validation that the splice plan was followed.
3. Contractor is responsible to locate fiber until acceptance by the ICN. Acceptance includes:
   3.1. Submission of construction and splicing red line drawings by contractor.
   3.2. Assignment of link number by the ICN (if applicable).
   3.3. Submission of final as built drawing by the ICN to the ICN Network Maintenance Provider.
   3.4. Submission to Iowa One Call and the ICN Network Maintenance Provider’s contract locater.
   3.5. The measurements in the Statement of Work are estimates and need to be verified by the contractor.
4. **Only written modifications to this Scope of Work are binding -** Verbal changes to this scope of work by any person or persons are not binding, unless confirmed in writing.
5. Final payment will not be processed until all deliverables are received and accepted.